FORESTRY

FRDA REPORT 061
PULP CHIP AVAILABILITY IN BRITISH COLUMBIA: 1987

BY
P.W. APPLEBY

FOREST RESOURCE DEVELOPMENT AGREEMENT

Canada

BC

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1.0 EXECUTIVE SUMMARY

In 1987, in round figures, 28 400 000 cubic metres (m^3) of residual chips were produced and 170 000 m^3 were imported for a total availability of 28 600 000 m^3.

Of the 28 600 000 m^3 available:

- 24 700 000 m^3 (86%) were consumed by B.C. pulpmills
- 2 200 000 m^3 (8%) were exported
- 1 700 000 m^3 (6%) were surplus.

Total residual chip volume in 1987, surplus to British Columbia pulpmill requirements was 3 900 000 m^3 - the total of regional surpluses plus exports.

Of the 1 700 000 m^3 of surplus chips in 1987, 67% was attributable to pulpmill inventory increases, 25% was contained in stockpiles at sawmills and 8% was burned by the producer.

Of the 26 900 000 m^3 of residual chips utilized in 1987, including exports, 70% was utilized within the region from which it originated and 30% was utilized outside the region from which it originated.

By 1990/1991, after allowing for increased fibre consumption through pulpmill expansions/additions and for changes in wood product plant residual chip production owing to known additions, closures or expansions, the projected residual chip surplus, including exports, would be in the order of 300 000 m^3 annually, everything else remaining constant.

By 1990/1991, after allowing for the same consumption and production changes but assuming that all sawmills are operating on a 2-shift basis and no exports take place, the projected residual chip deficit would be in the order of 750 000 m^3 annually, everything else remaining constant.

1987 is considered a very appropriate year for which to undertake a residual chip study. Log, lumber and pulp production levels reached all-time highs, as market conditions were generally favorable and there were no major production shutdowns or interruptions. Both the lumber and

pulp sectors operated at or close to current capacities. The logging sector operated at a justifiable level to support both the lumber and pulp sectors.

The actual residual chip surplus/deficit situation in the future will depend primarily on the relative operating levels of the lumber and pulp sectors of the forest products industry at any given time.

Nevertheless, a very real possibility exists that residual chip deficits could occur in the relatively near future. However, before this deficit situation occurs, it can reasonably be expected that additional roundwood chipping stations will come on stream to forestall this eventuality.

2.0 INTRODUCTION

In July, 1988, Reid, Collins and Associates Limited was awarded a contract to undertake a study to analyze the 1987 residual chip supply in British Columbia for the Canadian Forestry Service.

The terms of reference for this study are as follows:

- To divide the Province into logical chip supply regions.
- To prepare a key map showing chip supply regions, chip concentration centres, pulpmill locations and railways.
- To prepare a comprehensive mill listing.
- To tabulate all chip producing mills showing actual or estimated residual chip production by regions. This would include sawmills, plywood/veneer plants, shake and shingle mills, remanufacturing plants and chipping stations.
- To tabulate all pulpmills showing actual or estimated fibre requirements broken down by source (i.e. residual chips, on-site roundwood chips and sawdust). This would be undertaken on both a before and after expansion basis.
- To undertake a residual chip supply balance for each region, and the Province, on both a before and after pulpmill expansion basis.
- To include in the residual chip supply balance for each region the:
  - residual chip production
  - residual chip consumption
  - indicated regional regional surplus/deficit
  - estimated source of pulpmill residual chip requirements by region
  - estimated disposition of regional surpluses to other regions or exported
  - net regional surpluses or deficits following regional balancing or disposition to satisfy pulpmill residual chip requirements.

The approach used in this study was to send survey questionnaires to all residual chip producing and consuming plants throughout the Province in order to determine residual chip production and/or consumption at each plant location for the 1987 calendar year. For pulpmills, fibre consumption was requested on a before and after expansion basis.

This study considers only coniferous or softwood chips.

3.0 DEFINITIONS

3.1 Residual Chips

In this report, residual chips include all those chips produced by the wood products sector of the forest industry (sawmills, plywood/veneer plants, shake and shingle mills, remanufacturing plants), plus all chips produced from roundwood at chipping stations that are not located at a pulpmill site and/or are not considered equivalent to a pulpmill woodroom.

3.2 Roundwood Chips

Roundwood chips include only those chips produced from roundwood at a pulpmill site, plus those produced off-site in a facility considered equivalent to a pulpmill woodroom.

3.3 Units of Measure

In British Columbia, chip volumes are reported in a variety of measurement units. For example, the 21 pulpmills utilizing chips in 1987 reported chip consumption and purchases in the following units of measurement:

Units of Measurement	No. of Pulpmills
Gravity-packed (volumetric) units	3
Gravity-packed cubic metres	1
Cubic metres solid wood equivalent	6
Bone-dry units	9
Oven-dry tonnes	2
Total	**21**

All data in this report are presented in cubic metres (m^3) solid wood equivalent (SWE).

Unit definitions and conversion factors used for this report are as follows:

. Gravity-packed (volumetric) unit (GPU)
  - One GPU occupies 200 cubic feet of space and contains approximately 72 cubic feet of solid wood when 'normally' compacted.
  - Conversion factor: 1 GPU = 2.04 m^3 SWE.

. Gravity-packed cubic metre (GPm^3)
  - One GPm^3 occupies one cubic metre of space and contains approximately 0.36 cubic metres of solid wood when 'normally' compacted.
  - Conversion factor: 1 GPm^3 = 0.36 m^3 SWE.

. Bone-dry unit (BDU)
  - One BDU of chips weighs 2,400 pounds when oven-dry.
  - The solid wood content of one BDU of chips varies with individual species density and the species mixture within any given unit. Thus the cubic metre SWE of one BDU can vary from mill to mill and region to region. In this report one constant conversion factor has been used for consistency.
  - Conversion factor: 1 BDU = 2.60 m^3 SWE.

. Oven-dry tonne (odt)
  - One odt of chips weighs 2,204 pounds when oven-dry.
  - Again, the solid wood content varies with species density and the species mixture. In this report one constant conversion factor has been used for consistency.
  - Conversion factor: 1 odt = 2.39 m^3 SWE.

4.0 CHIP SUPPLY REGIONS

The Province was divided into 14 chip supply regions (see Key Map - Appendix I). These are based on logical geographical areas, Timber Supply Area boundaries, concentration of forest product manufacturing facilities and transportation considerations.

Table 1 lists the 14 regions, together with the major chip production and utilization centres within each.

The Key Map also shows pulpmill locations, chip concentration centres and railways.

TABLE 1

CHIP SUPPLY REGIONS AND MAJOR PRODUCTION/UTILIZATION CENTRES

Chip Supply Region No.	Name	Major Chip Centres*
1	East Kootenay/Golden	Canal Flats, Cranbrook, Donald, Elko, Galloway, Golden, Radium, **Skookumchuck.**
2	Arrow/West Kootenay	**Castlegar**, Creston, Fruitvale, Grand Forks, Midway, Salmo, Slocan.
3	Okanagan/Thompson	Armstrong, Canoe, Chase, Clearwater, **Kamloops**, Kelowna, Lytton, Lumby, Malakwa, Merritt, Okanagan Falls, Princeton, Revelstoke, Vavenby.
4	South Cariboo	Clinton, Lillooet, 100 Mile House.
5	Central Cariboo	Williams Lake.
6	North Cariboo	**Quesnel**, Strathnaver.
7	Prince George	Bear Lake, Fort St. James, Fraser Lake, McBride, Prince **George**, Shelley, Upper Fraser, Vanderhoof, Valemount.
8	Peace	Chetwynd, Fort St. John, Fort Nelson, **Taylor.**
9	Mackenzie	**Mackenzie.**
10	Cassiar	-
11	Babine	Burns Lake, Houston, Smithers.
12	North Coast/Skeena	Carnaby, Hazelton, **Kitimat**, Kitwanga, **Prince Rupert**, Terrace.
13	Central Coast	-
14	South Coast	Boston Bar, **Campbell River**, Chemainus, Cowichan Bay, Crofton, Fort Langley, **Gold River**, Ladysmith, **Nanaimo**, **Port Alice**, **Port Mellon**, **Port Alberni**, **Powell River**, Squamish, Tahsis, Greater Vancouver, Victoria, **Woodfibre**, Youbou, Whonock.

* Major Utilization Centres shown in **Bold Face.**

5.0 METHODOLOGY AND DERIVATION OF BASIC DATA

5.1 Mill Listing

A comprehensive forest industry mill listing was prepared using the following sources:

- A list of 'Major Primary Timber Processing Facilities in British Columbia', published by the Ministry of Forests in August, 1988.
- The 1986 membership list of the Independent Lumber Remanufacturers Association.
- Madison's 1987 Canadian Lumber Directory.
- B.C. Telephone Company's 1988 Yellow Pages Directories.

This listing contains all pulpmills, veneer and plywood plants, particleboard plants and chipping stations; all sawmills producing over 3 000 M fbm per year; all shake and shingle mills producing over 30 000 squares per year; and the major remanufacturing and specialty plants. Smaller sawmills and shake and shingle mills were included when they produced residual chips.

5.2 Chip Survey Questionnaires

Chip survey questionnaires were sent to most of the 263 manufacturing operations within the 127 forest products companies identified on the mill listing as producing or consuming chips. Virtually all questionnaire recipients were contacted by telephone prior to mailing.

Sample survey questionnaires are contained in Appendix II.

Table 2 shows the number of questionnaires sent out and returned by type of mill, and the number of mills for which partial information was received by telephone follow-up only.

TABLE 2

SUMMARY OF RESPONSE TO CHIP SURVEY

Mill Type	Questionnaires Sent Out	Questionnaires Returned	Partial Data Received by Phone	Total Response	No Response
Pulpmills	21	21	-	21	-
Sawmills	172	137	17	154	18
Veneer/Plywood Plants	24	19	2	21	3
Shake & Shingle Mills	24	11	12	23	1
Remanufacturing Plants	8	1	7	8	-
Chipping Stations	12	9	-	9	3
TOTAL	**261**	**198**	**38**	**236**	**25**
%	**100%**	**76%**	**14%**	**90%**	**10%**

Table 3 summarizes the number of manufacturing facilities in British Columbia included in the study by mill type and region.

Appendix III contains a listing of companies included in the study.

With very few exceptions, representatives of the forest products companies contacted throughout the course of this study were extremely cooperative.

TABLE 3

NUMBER OF FOREST PRODUCTS MANUFACTURING FACILITIES INCLUDED IN CHIP STUDY BY MILL TYPE AND REGION

Mill Type	Region No.*												
	1	2	3	4	5	6	7	8	9	11	12	14	Total
Pulpmills	1	1	1	-	-	2	3	1	2	-	2	9	22
Plywood/Veneer Plants	1	2	7	1	1	1	2	1	-	-	-	8	24
Sawmills:													
Over 100 000 M fbm/yr.	4	4	6	2	5	4	14	4	5	4	3	25	80
50 000-100 000 M fbm/yr.	2	-	13	2	-	2	5	1	-	1	2	18	46
25 000-50 000 M fbm/yr.	-	3	4	-	-	-	2	-	-	1	3	7	20
Under 25 000 M fbm/yr.	3	4	3	1	1	1	3	-	-	1	-	9	26
Subtotal	9	11	26	5	6	7	24	5	5	7	8	59	172
Shake & Shingle Mills	-	-	-	-	-	-	-	-	-	-	-	24	24
Remanufacturing Plants	-	-	-	-	-	-	2	-	-	-	-	6	8
Chipping Stations	-	-	-	-	-	-	-	-	1	1	3	8	13
Total	11	14	34	6	7	10	31	7	8	8	13	114	263

* No mills in Regions 10 and 13.

5.3 Analysis and Reconciliation of Basic Data

All questionnaires were reviewed for completeness and reliability of content. Virtually all companies were contacted more than once, either for additional information, clarification or for resolution of apparent discrepancies. For example, volume of chip sales and chip destinations reported by a producing operation frequently differed from those reported by the indicated consuming operation. This is owing primarily to the resale/trade, and thus the redirection of many chips once they have left the producing mill.

Most discrepancies were resolved and accounted for during this review and analysis process. Where discrepancies could not be resolved, some reported data required adjustment in order to ensure that chip sales and purchases balanced.

All residual chips produced were accounted for as either utilized, exported or stockpiled (surplus). Inventory changes were reflected in the volumes stockpiled or surplus.

Where no chip production data were obtained through questionnaires or by telephone follow-up, estimates have been used. Estimates have been indicated wherever they have been used exclusively.

6.0 1987 AND PROJECTED RESIDUAL CHIP PRODUCTION

A detailed tabulation of 1987, projected and projected 2-shift residual chip production by individual mills within each region is presented in Appendix IV.

Chip production data are presented for three scenarios, as follows:

- 1987 Production:
  - Actual 1987 chip production, except where estimates indicated.
- Projected Production:
  - Assumes mills operating at 1987 levels, but reflects known additions, closures and expansions to the fullest extent possible.
- Projected 2-shift Production:
  - Assumes all sawmills operating on a 2-shift basis, except where indicated. For other plants (plywood, veneer, shake and shingle, remanufacturing, chipping stations), generally assumes that plants will continue to operate at either their 1987 or projected levels. For sawmills currently operating on a 3-shift basis, 2-shift production was estimated at 75% of 3-shift production.

Table 4 summarizes 1987 and projected residual chip production by region. In 1987, in round figures, **28 400 000 m^3** SWE of residual chips were produced. Projected production and projected 2-shift production levels are 5% and 1% higher respectively.

TABLE 4

1987 AND PROJECTED RESIDUAL CHIP PRODUCTION BY REGION
(000's m^3)

Region No.	Region Name	1987 Production	Projected Production	Projected 2-Shift Production
1	East Kootenay/Golden	1 204	1 157	1 157
2	Arrow/West Kootenay	1 001	1 152	1 074
3	Okanagan/Thompson	3 397	3 213	3 175
4	South Cariboo	856	896	896
5	Central Cariboo	1 700	1 611	1 395
6	North Cariboo	1 525	1 539	1 370
7	Prince George	4 294	4 508	4 486
8	Peace	1 046	1 136	1 136
9	Mackenzie	1 210	1 251	1 194
10	Cassiar	-	-	-
11	Babine	1 537	1 545	1 545
12	North Coast/Skeena	1 175	1 683	1 581
13	Central Coast	-	-	-
14	South Coast	9 501	10 075	9 716
TOTAL CHIP PRODUCTION		**28 446**	**29 766**	**28 725**

Table 5 summarizes 1987 and projected residual chip production by mill type for the whole Province.

TABLE 5

1987 AND PROJECTED RESIDUAL CHIP PRODUCTION BY MILL TYPE
(000's m^3)

Mill Type	1987 Production	Projected Production	Projected 2-Shift Production
Sawmills	26 095	26 765	25 674
Plywood/Veneer Plants	1 423	1 496	1 496
Shake & Shingle Mills	433	445	445
Remanufacturing Plants	49	54	54
Chipping Stations	446	1 006	1 056
TOTAL	**28 446**	**29 766**	**28 725**

Table 5 indicates that projected chip production is higher than 1987 production owing primarily to increases at sawmills and chipping stations. On a projected 2-shift basis, however, sawmill chip production drops, although total production remains higher than 1987 production mainly because of the increased chip production from chipping stations.

It can reasonably be expected that, under 'normal' market conditions, sawmill chip production will remain close to 26 000 000 m^3 annually and that significant increases in future residual chip production will come solely from chipping stations.

7.0 1987 AND PROJECTED PULPMILL FIBRE CONSUMPTION

A detailed tabulation of 1987 and projected pulpmill fibre consumption by individual mills within each region is presented in Appendix V. Fibre consumption is broken down by residual chips, roundwood chips and sawdust.

For all pulpmills, 1987 total pulp production and fibre consumption is based on actual data reported on the questionnaires, or the equivalent.

Projected pulp production and fibre consumption is based on a combination of reported data and estimates. Projected data is the same as 1987 data, except where expansions have been announced and committed, or where new mills have come onstream. Possible projects, such as the proposed Alcan complex in the Vanderhoof area, have not been included.

Table 6 summarizes 1987 and projected pulpmill fibre consumption by region and fibre type. Hereafter, only the residual chip component of a pulpmill's fibre supply is considered further.

In 1987, in round figures, residual chip consumption by B.C. pulpmills was 24 700 000 m^3. Projected consumption (1990/1991), after pulpmill expansions, is estimated at 29 500 000 m^3, an increase of almost 20%.

TABLE 6

1987 AND PROJECTED PULPMILL FIBRE CONSUMPTION
(000's m^3)
(Excluding Exports)

Region No.	Region Name	1987 Consumption				Projected Consumption (1990/91)			
		Residual Chips	Roundwood Chips	Sawdust	Total	Residual Chips	Roundwood Chips	Sawdust	Total
1	East Kootenay/Golden	950	-	-	950	950	-	-	950
2	Arrow/West Kootenay	940	205	-	1 145	1 145	-	-	1 145
3	Okanagan/Thompson	1 610	-	625	2 235	1 610	-	625	2 235
4	South Cariboo	-	-	-	-	-	-	-	-
5	Central Cariboo	-	-	-	-	-	-	-	-
6	North Cariboo	1 880	-	-	1 880	2 425	-	-	2 425
7	Prince George	5 240	-	-	5 240	5 390	-	-	5 390
8	Peace	-	-	-	-	430	-	-	430
9	Mackenzie	1 490	-	-	1 490	1 545	-	-	1 545
10	Cassiar	-	-	-	-	-	-	-	-
11	Babine	-	-	-	-	-	-	-	-
12	North Coast/Skeena	2 770	735	205	3 710	3 485	735	230	4 450
13	Central Coast	-	-	-	-	-	-	-	-
14	South Coast	9 860	5 155	925	15 940	12 485	6 080	845	19 410
	TOTAL	24 740	6 095	1 755	32 590	29 465	6 815	1 700	37 980

8.0 1987 RESIDUAL CHIP SHIPMENTS WITHIN AND BETWEEN REGIONS

Table 7 presents a summary of 1987 residual chip shipments within and between regions.

Table 7 indicates, in round figures, that out of the total 26 900 000 m^3 of residual chips shipped, excluding surplus:

- 18 700 000 m^3 (70%) were utilized within the region from which they originated.
- 8 200 000 m^3 (30%) were either utilized outside the region from which they originated or were exported.

Data regarding shipments, imports and exports were developed during the analysis of questionnaires and after tracing the flow of chips. Allowances for third party transactions, involving the resale of Interior chips to coastal pulpmills, have been incorporated into Table 7. It was assumed that Interior chips resold by third parties to coastal pulpmills originated from Regions 3 and 4 - the regions in which coastal pulpmills would most likely acquire these chips if they had purchased directly.

TABLE 7

1987 RESIDUAL CHIP SHIPMENTS WITHIN AND BETWEEN REGIONS
(000's m^3)

Region Shipped From		Region Shipped To* (Excluding Surplus)										
No.	Name	1	2	3	6	7	9	12	14	Exported	Total	Shipped Outside Region
1	East Kootenay/Golden	848	87	-	-	-	-	-	-	110	1 045	197
2	Arrow/West Kootenay	74	831	-	-	-	-	-	-	96	1 001	170
3	Okanagan/Thompson	-	17	1 538	-	-	-	-	824	700	3 079	1 541
4	South Cariboo	-	-	72	-	78	-	-	202	504	856	856
5	Central Cariboo	-	-	-	697	867	-	-	22	90	1 676	1 676
6	North Cariboo	-	-	-	1 183	204	-	-	-	18	1 405	222
7	Prince George	-	-	-	-	3 552	-	272	-	15	3 839	287
8	Peace	-	-	-	-	506	329	31	-	180	1 046	1 046
9	Mackenzie	-	-	-	-	-	1 161	-	-	-	1 161	-
10	Cassiar	-	-	-	-	-	-	-	-	-	-	-
11	Babine	-	-	-	-	8	-	1 529	-	-	1 537	1 537
12	North Coast/Skeena	-	-	-	-	-	-	938	-	-	938	-
13	Central Coast	-	-	-	-	-	-	-	-	-	-	-
14	South Coast	-	-	-	-	-	-	-	8 701	472	9 173	472
	Imports from Outside B.C.	28	5	-	-	25	-	-	111	-	169	169
	TOTAL	950	940	1 610	1 880	5 240	1 490	2 770	9 860	2 185	26 925	8 173
	Shipped within Region	848	831	1 538	1 183	3 552	1 161	938	8 701	-	18 752	
	Shipped into Region	102	109	72	697	1 688	329	1 832	1 159	2 185	8 173	

* No residual chips shipped within or into Regions, 4, 5, 8, 10, 11 and 13.

9.0 1987 RESIDUAL CHIP AVAILABILITY, UTILIZATION AND SURPLUS WITHIN REGIONS

Table 8 presents a summary of 1987 residual chip availability, utilization and surplus within regions.

Table 8 indicates, in round figures, that out of the total of **28 600 000 m³** of residual chips available in 1987:

- 24 700 000 m³ (86%) were consumed by B.C. pulpmills.
- 2 200 000 m³ (8%) were exported.
- 1 700 000 m³ (6%) were surplus.

Table 8 also indicates that, in round figures, **170 000 m³** of residual chips were imported from outside of British Columbia in 1987, or 0.6% of the total residual chips available to B.C. pulpmills.

Of the total surplus of **1 700 000 m³** available in 1987:

- 1 140 000 m³ (67%) were pulpmill inventory increases.
- 420 000 m³ (25%) were sawmill stockpiles.
- 140 000 m³ (8%) were burned by producers.

In 1987, the total residual chip volume, surplus to the requirements of British Columbia pulpmills, was **3 900 000 m³**, comprising the total of regional surpluses plus exports.

TABLE 8

1987 RESIDUAL CHIP AVAILABILITY, UTILIZATION AND SURPLUS WITHIN REGIONS (000's m^3)

Region No.	Region Name	Availability Within Region: Residual Chip Production Within Region	Availability Within Region: Imported From Outside of B.C.	Availability Within Region: Total Chips Available	Utilization of Chips Available Within Region: Used by B.C. Pulpmills Within Region	Utilization of Chips Available Within Region: Used by B.C. Pulpmills Outside Region	Utilization of Chips Available Within Region: Exported	Utilization of Chips Available Within Region: Total Chips Utilized	Net Remaining Regional Surplus*
1	East Kootenay/Golden	1 204	28	1 232	876	87	110	1 073	159
2	Arrow/West Kootenay	1 001	5	1 006	836	74	96	1 006	-
3	Okanagan/Thompson	3 397	-	3 397	1 538	841	700	3 079	318
4	South Cariboo	856	-	856	-	352	504	856	-
5	Central Cariboo	1 700	-	1 700	-	1 586	90	1 676	24
6	North Cariboo	1 525	-	1 525	1 183	204	18	1 405	120
7	Prince George	4 294	25	4 319	3 577	272	15	3 864	455
8	Peace	1 046	-	1 046	-	866	180	1 046	-
9	Mackenzie	1 210	-	1 210	1 161	-	-	1 161	49
10	Cassiar	-	-	-	-	-	-	-	-
11	Babine	1 537	-	1 537	-	1 537	-	1 537	-
12	North Coast/Skeena	1 175	-	1 175	938	-	-	938	237
13	Central Coast	-	-	-	-	-	-	-	-
14	South Coast	9 501	111	9 612	8 812	-	472	9 284	328
	TOTAL	28 446	169	28 615	18 921	5 819	2 185	26 925	1 690

* Includes inventory increases at pulpmills and stockpiles or incineration at other plants.

10.0 1987 AND PROJECTED RESIDUAL CHIP SUPPLY BALANCES BY REGION

Table 9 provides, in one summary table, the **1987 residual chip supply balance** by region. Table 9 is based on the actual or estimated basic data contained in Appendices IV and V, and on data summarized in Table 4 (production), Table 6 (consumption) and Table 7 (shipments, imports, exports).

Table 9 again indicates that the **1987** provincial residual chip **surplus** totalled **1 700 000 m^3** and that the total residual chip volume, surplus to B.C. pulpmill requirements, totalled **3 900 000 m^3** when exports are included.

Table 10 provides a **projected residual chip supply** balance.

Table 10 is based upon:

- All chip producing facilities operating at 1987 levels; except where additions, expansions or closures have or are planned to take place. Based on basic data in Appendix IV, as summarized in Table 4.
- All pulpmills operating at current or expanded capacities where expansions have been announced and committed. Based on basic data in Appendix V, as summarized in Table 6.
- No imports of residual chips. Pulpmill developments in Alberta and Washington State are likely to curtail opportunities for importing chips in the future.
- No specified exports of chips, although the net remaining regional surpluses could be available for export.
- Chip shipments or allocations reflecting the most likely sources of chips to satisfy regional pulpmill residual chip requirements.

Table 10 indicates that the **projected** provincial chip **surplus** will be in the order of **300 000 m^3**, including any exports. This is expected to be the situation by 1990/1991 when all announced pulpmill expansions are on stream, assuming everything else remains constant.

Table 11 provides a projected **2-shift residual chip supply balance.**

Table 11 is based on the same criteria as Table 10, except that it is assumed that any sawmill, now operating on a 3-shift basis, is operating on a 2-shift basis.

Table 11 indicates that the **projected** provincial chip **deficit,** assuming all sawmills were operating on a 2-shift basis and everything else remained constant, would be in the order of **750 000 m^3.**

In Tables 10 and 11, alternative sources of pulpmill chips and/or disposition of regional surpluses could obviously be used. However, this would only affect distribution of the net remaining regional surplus or deficit volumes.

TABLE 9

1987 RESIDUAL CHIP SUPPLY BALANCE
(000's m^3)

Region No.	Region Name	Regional Chip Prod.	Regional Chip Cons.	Indicated Regional Surplus (Deficit)	Source of Pulpmill Chips: Region From	Source of Pulpmill Chips: Volume	Regional Surplus After Shipments Into Reg.	Disposition of Regional Surplus: Region To	Disposition of Regional Surplus: Volume	Net Remaining Regional Surplus
1	East Kootenay/Golden	1 204	950	254	1	848	356	2	87	159
					2	74		Exports	110	
					Imports	28				
2	Arrow/West Kootenay	1 001	940	61	1	87	170	1	74	-
					2	831		Exports	96	
					3	17				
					Imports	5				
3	Okanagan/Thompson	3 397	1 610	1 787	3	1 538	1 859	2	17	318
					4	72		14	824	
								Exports	700	
4	South Cariboo	856	-	856	-	-	856	3	72	-
								7	78	
								14	202	
								Exports	504	
5	Central Cariboo	1 700	-	1 700	-	-	1 700	6	697	24
								7	867	
								14	22	
								Exports	90	
6	North Cariboo	1 525	1 880	(355)	5	697	342	7	204	120
					6	1 183		Exports	18	
7	Prince George	4 294	5 240	(946)	4	78	742	12	272	455
					5	867		Exports	15	
					6	204				
					7	3 552				
					8	506				
					11	8				
					Imports	25				
8	Peace	1 046	-	1 046	-	-	1 046	7	506	
								9	329	
								12	31	
								Exports	180	
9	Mackenzie	1 210	1 490	(280)	8	329	49	-	-	49
					9	1 161				
10	Cassiar	-	-	-	-	-	-	-	-	-
11	Babine	1 537	-	1 537	-	-	1 537	7	8	-
								12	1 529	
12	North Coast/Skeena	1 175	2 770	(1 595)	7	272	237	-	-	237
					8	31				
					11	1 529				
					12	938				
13	Central Coast	-	-	-	-	-	-	-	-	-
14	South Coast	9 501	9 860	(359)	3	824	800	Exports	472	328
					4	202				
					5	22				
					14	8 701				
					Imports	111				
	TOTAL	28 446	24 740	3 706	-	24 740	9 694	-	8 004	1 690
	TOTAL Exports (Imports)					(169)			2 185	

TABLE 10

PROJECTED RESIDUAL CHIP SUPPLY BALANCE
(000's m^3)

Region No.	Region Name	Regional Chip Prod.	Regional Chip Cons.	Indicated Regional Surplus (Deficit)	Source of Pulpmill Chips Region From	Source of Pulpmill Chips Volume	Regional Surplus After Shipments Into Reg.	Disposition of Regional Surplus Region To	Disposition of Regional Surplus Volume	Net Remaining Regional Surplus
1	East Kootenay/Golden	1 157	950	207	1	943	214	-	-	214
					2	7				
2	Arrow/West Kootenay	1 152	1 145	7	2	1 145	7	1	7	-
3	Okanagan/Thompson	3 213	1 610	1 603	3	1 610	1 603	14	1 603	-
4	South Cariboo	896	-	896	-	-	896	7	2	-
								14	894	
5	Central Cariboo	1 611	-	1 611	-	-	1 611	6	886	-
								7	725	
6	North Cariboo	1 539	2 425	(886)	6	1 539	-	-	-	-
					5	886				
7	Prince George	4 508	5 390	(882)	7	4 251	257	12	257	-
					8	412				
					5	725				
					4	2				
8	Peace	1 136	430	706	8	430	706	9	294	-
								7	412	
9	Mackenzie	1 251	1 545	(294)	9	1 251	-	-	-	-
					8	294				
10	Cassiar	-	-	-	-	-	-	-	-	-
11	Babine	1 545	-	1 545	-	-	1 545	12	1 545	-
12	North Coast/Skeena	1 683	3 485	(1 802)	12	1 683	-	-	-	-
					11	1 545				
					7	257				
13	Central Coast	-	-	-	-	-	-	-	-	-
14	South Coast	10 075	12 485	(2 410)	14	9 988	87	-	-	87
					3	1 603				
					4	894				
	TOTAL	29 766	29 465	301	-	29 465	6 926	-	6 625	301

TABLE 11

PROJECTED 2-SHIFT RESIDUAL CHIP SUPPLY BALANCE
(000's m^3)

Region No.	Region Name	Regional Chip Prod.	Regional Chip Cons.	Indicated Regional Surplus (Deficit)	Source of Pulpmill Chips Region From	Source of Pulpmill Chips Volume	Regional Surplus After Shipments Into Reg.	Disposition of Regional Surplus Region To	Disposition of Regional Surplus Volume	Net Regional Surplus (Deficit)
1	East Kootenay/Golden	1 157	950	207	1	950	207	2	71	-
								14	136	
2	Arrow/West Kootenay	1 074	1 145	(71)	2	1 074	-	-	-	-
					1	71				
3	Okanagan/Thompson	3 175	1 610	1 565	3	1 610	1 565	14	1 565	-
4	South Cariboo	896	-	896	-	-	896	7	209	-
								14	687	
5	Central Cariboo	1 395	-	1 395	-	-	1 395	6	1 055	-
								7	340	
6	North Cariboo	1 370	2 425	(1 055)	6	1 370	-	-	-	-
					5	1 055				
7	Prince George	4 486	5 390	(904)	7	4 486	-	-	-	-
					8	355				
					5	340				
					4	209				
8	Peace	1 136	430	706	8	430	706	9	351	-
								7	355	
9	Mackenzie	1 194	1 545	(351)	9	1 194	-	-	-	-
					8	351				
10	Cassiar	-	-	-	-	-	-	-	-	-
11	Babine	1 545	-	1 545	-	-	1 545	12	1 545	-
12	North Coast/Skeena	1 581	3 485	(1 904)	12	1 581	(359)	-	-	(359)
					11	1 545				
13	Central Coast	-	-	-	-	-	-	-	-	-
14	South Coast	9 716	12 485	(2 769)	14	9 716	(381)	-	-	(381)
					4	687				
					3	1 565				
					1	136				
	TOTAL	28 725	29 465	(740)	-	28 725	5 574	-	6 314	(740)

11.0 APPLICABILITY OF 1987 AS BASE YEAR FOR THE STUDY AND CONCLUSIONS

Table 12 summarizes B.C. Coast and Interior lumber production for the 10-year period, 1978 to 1987 inclusive, together with annual fluctuations.

TABLE 12

B.C. LUMBER PRODUCTION - 1978 TO 1987

Year	Lumber Production (millions fbm) Coast	Interior	Total	% Diff. from 10-Year Average	% Change from Prev. Year
1978	4 803	7 742	12 545	- 1.2	-
1979	4 657	7 861	12 518	- 1.4	- 0.2
1980	4 252	7 727	11 979	- 5.6	- 4.3
1981	3 458	6 966	10 424	-17.9	- 13.0
1982	3 170	6 939	10 109	-20.4	- 3.0
1983	4 140	8 903	13 043	+ 2.8	+ 29.0
1984	3 903	9 175	13 078	+ 3.0	+ 0.3
1985	3 996	10 007	14 003	+10.3	+ 7.1
1986	3 753	9 582	13 335	+ 5.1	- 4.8
1987	4 674	11 214	15 888	+25.2	+ 19.1
Average:	**4 081**	**8 612**	**12 692**		

Source: Statistics Canada.

Table 12 indicates that total 1987 B.C. lumber production was 15 888 million fbm. This compares to a total of 15 785 million fbm accounted for in the mill-by-mill tabulation contained in Appendix IV. The difference (0.6%) arises because smaller, non-chip producing sawmills were not included in Appendix IV.

B.C. lumber production reached an all-time high in 1987, exceeding 1986 production by 19%.

Table 13 summarizes B.C. Coast and Interior log production for the 10-year period, 1978 to 1987 inclusive, together with annual fluctuations.

TABLE 13

B.C. LOG PRODUCTION - 1978 TO 1987

Year	Log Production (000's m^3) Coast	Interior	Total	% Diff. from 10-Year Average	% Change from Prev. Year
1978	32 338	42 815	75 153	+ 2.6	-
1979	30 566	45 628	76 194	+ 4.0	+ 1.4
1980	30 713	43 941	74 654	+ 1.9	- 2.1
1981	22 453	37 032	59 485	-18.8	-20.3
1982	21 351	34 879	56 230	-23.2	- 5.5
1983	26 846	44 597	71 443	- 2.5	+27.1
1984	27 226	47 330	74 556	+ 1.8	+ 4.4
1985	27 722	49 146	76 868	+ 4.9	+ 3.0
1986	26 561	50 942	77 503	+ 5.8	+ 0.8
1987	33 791	56 800	90 591	+23.7	+16.9
10-Year Average:	**27 957**	**45 311**	**73 268**		
5-Year Average:	**28 429**	**49 763**	**78 192**		

Source: B.C. Ministry of Forests.

Table 13 indicates that B.C. log production in 1987 also reached an all-time high of over 90 million m^3, exceeding its previous high in 1986 by 17%.

Table 14 summarizes B.C. pulp production for the 10-year period, 1978 to 1987 inclusive, together with annual fluctuations.

TABLE 14

B.C. PULP PRODUCTION - 1978 TO 1987

Year	Pulp Production (000's tonnes)	% Diff. from 10-Year Average	% Change from Prev. Year
1978	5 382	- 4.8	-
1979	5 324	- 5.9	- 1.1
1980	5 717	+ 1.1	+ 7.4
1981	4 813	-14.9	-15.8
1982	4 759	-15.9	- 1.1
1983	5 752	+ 1.7	+20.9
1984	5 371	- 5.0	- 6.6
1985	6 029	+ 6.6	+12.3
1986	6 354	+12.3	+ 5.4
1987	7 060	+24.8	+11.1
Average:	**5 656**		

Source: CPPA.

Table 14 indicates that total 1987 B.C. pulp production was 7 060 thousand tonnes. This compares to a total of 6 911 thousand tonnes accounted for in the mill-by-mill tabulation contained in Appendix V. The difference (2.1%) arises primarily because non-chip consuming pulpmills, such as Scott Paper, were not included in Appendix V.

B.C. pulp production in 1987 also reached an all-time high in 1987, exceeding its previous high in 1986 by 11%.

- - - - - - - - - - - - - - - - -

Total production of residual chips in any given year depends primarily on the operating level of the lumber sector of the forest industry, while total utilization depends primarily on the operating level of the pulp sector.

In 1987, B.C. pulp, lumber and log production levels reached all-time highs, as market conditions were generally favorable and there were no major production shutdowns or interruptions.

- The pulp sector operated at, or very close to, its current rated capacity.
- The lumber sector most probably operated slightly over its current rated 2-shift capacity, mainly because a number of mills were operating on a temporary 3-shift basis in order to process salvage material from blowdown, fire and insect infestation areas.
- The logging sector operated at well above its current long-run sustainable level of between 75 to 80 million m^3 annually. However, it has the ability to do this when market conditions are good in both the lumber and pulp sectors because of cutbacks in poorer years. Table 13 indicates that the 10-year (1978 to 1987) average annual log harvest was 73 million m^3 and that the 5-year (1983 to 1987) average annual log harvest was 78 million m^3.

Thus 1987 is considered a very appropriate year for which to undertake a province-wide residual chip study, in that both the lumber and pulp sectors were operating at or close to current capacities and in that the logging sector could operate at a justifiable level to support both the lumber and pulp sectors.

- - - - - - - - - - - - - - - - -

Several possible projected residual chip supply balance scenarios were presented earlier in this report, out of many that could have been chosen. Under the projected scenario (Table 10), the Province still has a residual chip surplus, although it has been reduced significantly from 1987 levels. Under the projected 2-shift scenario (Table 11), some regions of the Province reach a deficit situation in regards to residual chip availability.

The actual residual chip surplus/deficit situation in the future will depend primarily on the relative operating levels of the lumber and pulp sectors of the forest industry.

If projected residual chip consumption by pulpmills is reduced substantially owing to poor pulp and/or paper markets, while at the same time chip production by sawmills remains high owing

to good lumber markets, then in those years a chip surplus situation could be expected with continuing opportunities for export. However, if the reverse were the case, a significant residual chip deficit could occur. This deficit would be substantially increased if chip exports continued in those years.

In conclusion, a very real possibility exists that regional residual chip deficits could occur in the future under varying combinations of lumber and pulp sector operating levels. However, before this chip deficit situation occurs, it can reasonably be expected that additional roundwood chipping stations will come on stream at strategic locations throughout the Province, thus ensuring that pulpmill residual chip requirements, and possibly export commitments, continue to be met. Significant increases in future residual chip production, over 1987 levels, will originate solely from chipping stations.

APPENDICES

APPENDIX I

KEY MAP SHOWING CHIP SUPPLY REGIONS

BRITISH COLUMBIA
CHIP SUPPLY REGIONS
50 0 50 100 150 200 KILOMETRES
N
YUKON
N.W.T.
ALBERTA
USA
PACIFIC OCEAN
QUEEN CHARLOTTE ISLANDS
VANCOUVER ISLAND
U.S.A.
LEGEND
CHIP SUPPLY REGIONS
No. Name
1 EAST KOOTENAY/GOLDEN
2 ARROW/WEST KOOTENAY
3 OKANAGAN/THOMPSON
4 SOUTH CARIBOO
5 CENTRAL CARIBOO
6 NORTH CARIBOO
7 PRINCE GEORGE
8 PEACE
9 MACKENZIE
10 CASSIAR
11 BABINE
12 NORTH COAST/SKEENA
13 CENTRAL COAST
14 SOUTH COAST
P PARK/RESERVE
CHIP CONCENTRATION CENTRES
CHIP SUPPLY REGION BOUNDARY
RAILWAY
PULPMILLS
1 CRESTBROOK FOREST INDUSTRIES
2 CELGAR PULP
3 WEYERHAEUSER CANADA
4 CARIBOO PULP AND PAPER
5 QUESNEL RIVER PULP
6 INTERCONTINENTAL PULP (CANFOR)
7 PRINCE GEORGE PULP AND PAPER (CANFOR)
8 NORTHWOOD PULP AND TIMBER
9 FIBRECO
10 FLETCHER CHALLENGE (MACKENZIE)
11 FINLAY FOREST INDUSTRIES
12 EURocan PULP AND PAPER
13 SKEENA CELLULOSE (2 MILLS)
14 WESTERN PULP (PORT ALICE)
15 CANADIAN PACIFIC FOREST PRODUCTS
16 FLETCHER CHALLENGE (CAMPBELL RIVER)
17 MacMILLAN BLOEDEL (POWELL RIVER)
18 MacMILLAN BLOEDEL (ALBERNI PULP)
19 MacMILLAN BLOEDEL (HARMAC)
20 FLETCHER CHALLENGE (CROFTON)
21 WESTERN PULP (WOODFIBRE)
22 HOWE SOUND PULP AND PAPER
23 SCOTT PAPER
10
9
8
12
11
7
6
5
4
3
2
1
13
14
FORT NELSON
FORT ST. JOHN
DAWSON CREEK
HAZELTON
SMITHERS
PRINCE RUPERT
TERRACE
KITIMAT
HOUSTON
BURNS LAKE
FORT ST. JAMES
PRINCE GEORGE
MACKENZIE
STRATHNAIRN
QUESNEL
WILLIAMS LAKE
CLEARWATER
100 MILE HOUSE
CLINTON
LILLOOET
LYTTON
CHASE
KAMLOOPS
MERRITT
PENTICTON
OLIVER
OSOYOOS
GRAND FORKS
CASTLEGAR
TRAIL
ROSSLAND
NELSON
CRESTON
KIMBERLEY
CRANBROOK
FERNIE
GOLDEN
REVELSTOKE
SALMON ARM
VERNON
KELOWNA
PENTICTON
PORT ALICE
CAMPBELL RIVER
POWELL RIVER
PORT ALBERNI
LADYSMITH
DUNCAN
NANAIMO
PORT MELLON
HOWE SOUND
VANCOUVER
PORT MOODY
PORT COQUITLAM
NEW WESTMINSTER
CHILLIWACK
HOPE
VICTORIA
SOOKE
COURTENAY
CROFTON

APPENDIX II

SAMPLE CHIP SURVEY QUESTIONNAIRES

SAWMILL, PLYWOOD/VENEER, REMAN., SHAKE/SHINGLE QUESTIONNAIRE

1987 CHIP PRODUCTION/CONSUMPTION SURVEY

.Company: _____ .Completed By: _____

.Division: _____ .Telephone No: _____

.Mill Location: _____ .Date: _____

****

1.MILL DATA:

.1987 Production:

	000's	
.Lumber	_____	fbm
.Plywood/Veneer	_____	3/8" equiv.
.Shakes/Shingles	_____	squares
.Other ( )..	_____	

.1987 Log Consumption: _____ m3

.1987 Chip Production: _____ (.....units)

.Approximate Species Mix (%): F ____ C ____ H _____ B ____

S ____ P1 ___ SPF ___ O ____

.No. of Shifts per Day: _____ .No. of operating days in 1987:_____ If less than 'normal', please explain:

_____

_____

.If a sawmill, main product ??? _____
(dimension, studs, etc.)

.If a sawmill, main headrig(s) type ?? _____
(band,circular,chipper,etc)

_____

_____

2.1987 CHIP SALES/DISPOSITION:

	VOLUME (.....) units
.Pulpmill (name): _____	_____
.Pulpmill (name): _____	_____
.Pulpmill (name): _____	_____
.Pulpmill (name): _____	_____
.Pulpmill (name): _____	_____
.Pulpmill (name): _____	_____
.Sold to or through Fibreco:	_____
.Exported (not through Fibreco):	_____
.Stockpiled on-site:	_____
.OTHER ( )	_____
.TOTAL PRODUCTION/DISPOSITION:	==========

3.OTHER:

.Do you expect this mill's chip production to change appreciably over the next few years? YES/NO _____. If YES,please elaborate:

.Does this mill currently 'maximize' chip production? YES/NO _____. If NO, by what estimated % could chip production increase, if 'conditions' were right? ..._____ %

.Should a future residual chip deficit occur, how much additional 'chippable' pulpwood material could your operation extract from its logging areas, as a % of 1987 log production? ... _____ %

4.COMMENTS: _____

PULPMILL QUESTIONNAIRE

1987 CHIP PRODUCTION/CONSUMPTION SURVEY

.Company: _____ .Completed By: _____

.Division: _____ .Telephone No: _____

.Mill Location: _____ .Date: _____

****

1.MILL DATA:

.1987 Pulp Production:

	Metric Tonnes
.Kraft---Bleached	_____
---Semi-bleached ...	_____
---Unbleached	_____
.Sulphite	_____
.Groundwood	_____
.TMP/CTMP	_____
.TOTAL PULP	==========

.1987 On-Site Roundwood Usage: _____ m3

.1987 Fibre Consumption:

	Volume (.....units)
.Residual Chips (sawmills etc.)	_____
.Roundwood Chips (prod. on-site) ...	_____
.Sawdust/Chip Fines	_____
.TOTAL FIBRE	==========

.Approximate Species Mix Used (%): F ____ C ____ H ____ B ____

S ____ Pl ___ SPF___ O ____

.No. of operating days in 1987: _____ If less than 'normal',

please explain:_____

_____

2. SOURCE OF 1987 RESIDUAL CHIPS: (incl. off-site chipping stations)

Mill/Company Name	Volume (.....units)
Purchased Through Fibreco.....	
TOTAL RESIDUAL CHIPS ***	

*** May be more/less than 1987 consumption due to inventory changes.

3. CURRENT OR COMMITTED EXPANSIONS:

Are any expansions in pulp capacity currently underway or committed at this location ? YES/NO_____. IF YES, please indicate:

.Pulp Type (kraft, TMP/CTMP, groundwood): _____

.Annual Capacity Increase Planned: _____metric tonnes

.Increased Fibre Requirements:	Volume (.....units)
.Residual Chips	
.Roundwood Chips	
.Sawdust/Chip Fines	
.TOTAL FIBRE	

4. COMMENTS/OTHER:

_____

_____

_____

APPENDIX III

LISTING OF COMPANIES INCLUDED IN STUDY

LISTING OF COMPANIES INCLUDED IN STUDY

Ainsworth Lumber (1987) Ltd.
Allwood Products Ltd.
Apollo Forest Products Ltd.
Ardew Wood Products Ltd.
Aspen Planers Ltd.
Associated Cedar Products Ltd.
Atco Lumber Ltd.
Babine Forest Products Ltd.
Balco Industries Ltd.
Balfour Forest Products Inc.
Bayside Sawmills Ltd.
Black Hawk Forest Products Ltd.
Bond Bros. Sawmills Ltd.
Brink Forest Products Ltd.
Brisco Wood Preservers Ltd.
C & C Wood Products Ltd.
C & C Lath Mill Ltd.
Canadian Forest Products Ltd. (Canfor)
Canadian Pacific Forest Products Ltd.
Cariboo Pulp and Paper Co.
Carrier Lumber Ltd.
Celgar Pulp Company
Chernoff Bros. Sawmills Ltd.
Chico Wood Fibre
Cimcor Fibre Ltd.
CIPA Industries Ltd.
Clayton Cedar Products Ltd.
Coastland Wood Industries Ltd.
Crestbrook Forest Industries Ltd.
Decker Lake Forest Products Ltd.
Delta Cedar Products Ltd.
Doman Industries Ltd.
Downie Street Sawmills Ltd.
Dunkley Lumber Ltd.
Empire Cedar Products Ltd.
Esket Wood Products Ltd.
Eurocan Pulp and Paper Co. Ltd.
Evans Products Co. Ltd.
Federated Co-operatives Ltd.
Finlay Forest Industries Ltd.
Fletcher Challenge Canada Ltd.
Fraser Pulp Chips Ltd.
Fraser Cedar Products Ltd.
G and R Cedar Ltd.
G.W. Lobb Shingle Mill Ltd.
Galloway Lumber Co. Ltd.
Gilbert Smith Forest Products Ltd.
Goldwood Industries Ltd.
Gorman Bros. Lumber Ltd.
Green River Log Sales Ltd.
Gregory Forest Products
Haslam Lake Lumber
Houston Forest Products Ltd.
Inland Shake and Shingle Ltd.
International Forest Products Ltd. (Interfor)
J.H. Huscroft Ltd.
Jackpine Forest Products Ltd.
Jacobson Bros. Forest Products Ltd.
Kalesnikoff Lumber Co. Ltd.
Kitwanga Lumber Co. Ltd.
Kootenay Wood Preservers Ltd.
Kyah Forest Products Ltd.
L & M Lumber Ltd.
Lakeland Mills (1973) Ltd.
Lamford Forest Products Ltd.
Leslie Specialty Products Ltd.

Lignum Limited
Lindal Cedar Homes Ltd.
Lytton Lumber Ltd.
MacMillan Bloedel Ltd.
Meadow Creek Cedar Ltd.
Meeker Cedar Products Ltd.
Mill and Timber Products Ltd.
Mission Shake Ltd.
MJS Lumber
Morton Industries Ltd.
Nagaard Sawmill Ltd.
Northwood Pulp and Timber Ltd.
Parker Cedar Products Ltd.
Pattar Forest Products Ltd.
Paulcan Enterprises Ltd.
Pitt Timber Ltd.
Pope and Talbot Ltd.
Port Mann Lumber Remanufacturing Ltd.
Premium Cedar Products Ltd.
Primex Forest Products Ltd.
Prince George Wood Preserving Ltd.
Prince George Precut Ltd.
Prospective Shake Products Ltd.
Quesnel River Pulp Company
R and K Cedar Products Ltd.
Raven Lumber Ltd.
Richmond Plywood Corp. Ltd.
Riverside Forest Products Ltd.
Rustad Bros. & Co. Ltd.
S and W Shake and Shingle Ltd.
S and R Sawmills Ltd.
Samra Bros. Cedar Products Ltd.
Sawarne Lumber Co. Ltd.
Seel Forest Products Ltd.
Silvermere Forest Products
Skeena Cellulose Inc.
Slocan Forest Products Ltd.
Starco Pacific Manufacturing Ltd.
Stege Logging Ltd.
Stuart Lake Lumber Co. Ltd.
Tackama Forest Products Ltd.
Teal Cedar Products Ltd.
Terminal Forest Products Ltd.
The Pas Lumber Company Ltd.
Tolko Industries Ltd.
United Sawmill Ltd.
Upstream Cedar Products Ltd.
Van Isle Fibre Ltd.
Vedder River Shake and Shingle Ltd.
Victoria Plywood Cooperative
Waldun Forest Products Ltd.
Wedeene River Contracting Ltd.
Weldwood of Canada Ltd.
West Fraser Mills Ltd.
Westar Timber Ltd.
Western Pulp Inc.
Weyerhaeuser Canada Ltd.
Woodland Lumber Ltd.
Wynndel Box & Lumber Co. Ltd.
Ymir Forest Products Ltd.
Zeidler Forest Industries Ltd.

APPENDIX IV

CURRENT AND PROJECTED RESIDUAL CHIP PRODUCTION BY COMPANY, MILL AND REGION

Note: Estimates of 1987 data are shown in parenthesis. All projected data are considered estimates.

TABLE A-4.1

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 1 - EAST KOOTENAY/GOLDEN

Company/Mill Type	Mill Location	Mill Production			Chip Production (000's m3)		
		1987	Projected	Projected 2-Shift	1987	Projected	Projected 2-Shift
Sawmills (millions fbm):							
Brisco Wood Preservers	Brisco	-	12	12 (1)	-	18	18
Crestbrook Forest Industries	Elko	138	138	138	201	201	201
Crestbrook Forest Industries	Cranbrook	127	127	127	216	216	216
Crestbrook Forest Industries	Canal Flats	176	135	135	286	219	219
Evans Products	Donald	110	110	110	134	150	150
Galloway Lumber	Galloway	52	50	50	111	90	90
Kootenay Wood Preservers	Kimberley	8	8	8 (1)	12	12	12
Seel Forest Products	Edgewater	4	7	7	7	14	14
Slocan Forest Products	Radium	99	99	99	167	167	167
Subtotal - Sawmills:		714	686	686	1134	1087	1087
Plywood/Veneer(millions 3/8"):							
Evans Products	Golden	155	155	155	70	70	70
TOTAL:					1204	1157	1157

(1) 1-Shift Operation

TABLE A-4.2

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL

REGION NO. 2 - ARROW/WEST KOOTENAY

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Atco Lumber	Park Siding	35	35	35	60	60	60
Chernoff Bros.	Nakusp	1	1	1 (1)	1	1	1
J.H. Huscroft	Erickson	25	25	25	30	30	30
Kalesnikoff Lumber	Thrums	18	30	30	23	45	45
Meadow Creek Cedar	Cooper Creek	10	10	10	-	12	12
Pope and Talbot	Grand Forks	104	140	105	114	190	143
Pope and Talbot	Midway	133	133	133	184	184	184
Slocan Forest Products	Slocan	128	128	115	202	202	184
Westar Timber	Castlegar	(190)	220	220	280	300	300
Wyndell Box & Lumber	Wyndell	25	25	22	31	31	28
Ymir Forest Products	Ymir	17	17	13	37	37	27
Subtotal - Sawmills:		682	762	709	942	1092	1014
Plywood/Veneer (millions 3/8"):							
Atco Lumber	Fruitvale	66	66	66	36	36	36
Crestbrook Forest Industries	Creston	34	35	35 (1)	23	24	24
Subtotal - Plywood:		100	101	101	59	60	60
TOTAL:					1001	1152	1074

(1) 1-Shift Operation

TABLE A-4.3

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL

REGION NO. 3 - OKANAGAN/THOMPSON

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Ainsworth Lumber	Savona	(35)	closed	-	52	-	-
Ardew Wood Products	Merritt	10	10	10 (1)	23	23	23
Aspen Planers	Merritt	60	60	60	107	107	107
Balco Industries(Tolko)	Merritt	74	100	100	113	150	150
Balco Industries(Tolko)	Louis Creek	83	100	100	138	167	167
Balco Industries(Tolko)	Heffley Creek	58	closed	-	100	-	-
Downie Street Sawmills	Revelstoke	closed	47	47	-	65	65
Federated Co-operatives	Canoe	62	62	62	(87)	87	87
Fletcher Challenge(Crown)	Armstrong	113	113	113	259	250	250
Fletcher Challenge(Crown)	Kelowna	113	120	120	223	230	230
Fletcher Challenge(Crown)	Lumby	31	to close 1989		26	-	-
Gilbert Smith Forest Products	Barriere	(14)	14	14 (1)	18	18	18
Gorman Bros. Lumber	Westbank	68	68	68	113	113	113
Interfor (Adams Lake Lumber)	Adams Lake	154	154	135	182	160	160
Lytton Lumber	Lytton	24	25	25	44	46	46
Riverside Forest Products	Lumby	90	90	90	153	153	153
Slocan Forest Products	Clearwater	61	closed	-	152	-	-
Slocan Forest Products	Vavenby	68	73	73	143	152	152
Tolko Industries	Lavington	84	84	65	168	168	130
Westar Timber (Beau-J)	Malakwa	(40)	50	50	(40)	60	60
Weyerhaeuser Canada	Kamloops	88	88	88	133	133	133
Weyerhaeuser Canada	Lumby	73	73	73	102	102	102
Weyerhaeuser Canada	Merritt	118	118	118	149	149	149
Weyerhaeuser Canada	Okanagan Falls	90	94	94	162	168	168
Weyerhaeuser Canada	Princeton	143	143	143	160	160	160
Weyerhaeuser Canada	Vavenby	136	137	137	202	204	204
Subtotal - Sawmills:		1888	1819	1781	3049	2865	2827
Plywood/Veneer (millions 3/8"):							
Ainsworth Lumber	Savona	72	65	65	-	-	-
Balco Industries	Heffley Creek	91	91	91	42	42	42
Balco Industries	Merritt	45	45	45	23	23	23
Federated Co-operatives	Canoe	(97)	97	97	(33)	33	33
Fletcher Challenge(Crown)	Armstrong	173	173	173	122	122	122
Fletcher Challenge(Crown)	Kelowna	88	88	88	78	78	78
Riverside Forest Products	Lumby	107	107	107	50	50	50
Subtotal - Plywood:		673	666	666	348	348	348
TOTAL:					3397	3213	3175

(1) 1-Shift Operation

TABLE A-4.4

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 4 - SOUTH CARIBOO

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Ainsworth Lumber (Chasm)	Clinton	93	93	93	203	203	203
Ainsworth Lumber	Lillooet	85	100	100	115	135	135
Ainsworth Lumber (Exeter)	100 Mile House	115	115	115	218	218	218
Esket Wood Products	Lac La Hache	-	15	15	-	25	25
Weldwood of Canada	100 Mile House	158	155	155	274	255	255
Subtotal - Sawmills:		451	478	478	810	836	836
Plywood/Veneer (millions 3/8"):							
Ainsworth Lumber	Lillooet	95	125	125	46	60	60
TOTAL:					856	896	896

TABLE A-4.5

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 5 - CENTRAL CARIBOO

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Fletcher Chlge.(Pinette&Therrien)	Williams Lake	220	185	150	468	395	320
Jacobson Bros. Forest Products	Williams Lake	188	180	180	272	261	261
Jackpine Enterprises	Williams Lake	10	12	12	9	16	16
Lignum	Williams Lake	186	180	160	365	353	280
Weldwood of Canada	Williams Lake	109	109	109	202	202	202
West Fraser Mills	Williams Lake	121	121	90	268	268	200
Subtotal - Sawmills:		834	787	701	1584	1495	1279
Plywood/Veneer (millions 3/8"):							
Weldwood of Canada	Williams Lake	178	178	178	116	116	116
TOTAL:					1700	1611	1395

TABLE A-4.6

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 6 - NORTH CARIBOO

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
C & C Wood Products	Quesnel	7	24	24	8	26	26
Dunkley Lumber	Strathnaver	132	132	132	176	176	176
Slocan Forest Products(Quesnel)	Quesnel	181	181	135	292	292	218
Slocan Forest Products(Weiers)	Quesnel	66	66	66	83	83	83
Tolko Industries(Quest Wood)	Quesnel	152	155	155	275	271	271
Weldwood of Canada	Quesnel	94	94	94	155	155	155
West Fraser Mills	Quesnel	253	253	190	390	390	295
Subtotal - Sawmills:		885	905	796	1379	1393	1224
Plywood/Veneer (millions 3/8"):							
Weldwood of Canada	Quesnel	227	227	227	146	146	146
TOTAL:					1525	1539	1370

TABLE A-4.7

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 7 - PRINCE GEORGE

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Apollo Forest Products	Fort St. James	81	81	81	91	100	100
Balfour Forest Products(Polar)	Bear Lake	113	113	113	154	154	154
Balfour Forest Products(NOM)	Prince George	239	239	239	342	342	342
Balfour Forest Products(Clear Lk.)	Prince George	107	110	110	151	155	155
Bond Bros. Sawmill	Vanderhoof	40	48	48	49	64	64
Brink Forest Products	Fort St. James	(30)	40	40	-	50	50
Canfor(Takla Forest Products)	Isle Pierre	102	102	102	201	201	201
Canfor(Takla Forest Products)	Fort St. James	184	200	200	236	260	260
Carrier Lumber	Prince George	147	150	150	254	260	260
Fraser Lake Sawmills(Eurocan)	Le Jac	244	244	244	347	347	347
Gregory Forest Products	Fort St. James	(2)	2	2	5	5	5
L & M Lumber	Vanderhoof	104	104	104	156	156	156
Lakeland Mills	Prince George	121	121	121	108	108	108
Northwood Pulp & Timber	Prince George	162	162	162	323	323	323
Northwood Pulp & Timber	Shelley	70	70	53	88	92	70
Northwood Pulp & Timber	Upper Fraser	196	196	196	290	300	300
The Pas Lumber	Bear Lake	208	208	208	244	244	244
Prince George Wood Preserving	Prince George	75	75	75	118	118	118
Rustad Bros.	Prince George	189	220	220	303	350	350
Slocan Forest Products	Valemount	66	71	71	139	148	148
Stuart Lake Lumber	Fort St. James	52	52	52	102	102	102
Westar Timber(Plateau Mills)	Engen	(240)	260	260	395	425	425
Woodland Lumber	Prince George	5	8	8 (1)	8	14	14
Zeidler Forest Industries	McBride	15	15	15 (1)	24	24	24
Subtotal - Sawmills:		2792	2891	2874	4128	4342	4320
Plywood\Veneer (millions 3/8"):							
Northwood Pulp & Timber	Prince George	167	167	167	120	120	120
Zeidler Forest Industries	McBride	83	83	83	33	33	33
Subtotal - Plywood:		250	250	250	153	153	153
Remanufacturing Plants:							
Brink Forest Products	Prince George	-	-	-	9	9	9
Prince George Precut	Prince George	-	-	-	4	4	4
Subtotal - Reman.:		-	-	-	13	13	13
TOTAL:					4294	4508	4486

(1) 1-Shift Operation

TABLE A-4.8

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL

REGION NO. 8 - PEACE

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Balfour Forest Prod.(Peacewood)	Taylor	148	148	148	205	225	225
Canfor	Chetwynd	148	160	160	218	235	235
Canfor	Fort St. John	138	138	138	212	220	220
Tackama Forest Products	Fort Nelson	70	100	100	105	150	150
West Fraser Mills	Chetwynd	138	138	138	229	229	229
Subtotal - Sawmills:		642	684	684	969	1059	1059
Plywood/Veneer (millions 3/8"):							
Tackama Forest Products	Fort Nelson	160	160	160	77	77	77
TOTAL:					1046	1136	1136

TABLE A-4.9

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 9 - MACKENZIE

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Finlay Forest Ind.-Site 1	Mackenzie	106	125	125	239	280	280
Finlay Forest Ind.-Site 2	Mackenzie	144	144	110	237	237	180
Fletcher Challenge "A"(BCFP)	Mackenzie	119	119	119	225	225	225
Fletcher Challenge "B"(BCFP)	Mackenzie	110	110	110	208	208	208
Fletcher Challenge "C"(BCFP)	Mackenzie	143	143	143	290	290	290
Subtotal - Sawmills:		622	641	607	1199	1240	1183
Chipping Stations (000's m3):							
Chico Wood Fibre	Mackenzie	-	-	-	11	11	11
TOTAL:					1210	1251	1194

TABLE A-4.10

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL

REGION NO. 10 - CASSIAR

Company/Mill Type	Mill Location	Mill Production			Chip Production (000's m3)		
		1987	Projected	Projected 2-Shift	1987	Projected	Projected 2-Shift

NO CHIPS CURRENTLY PRODUCED IN THIS REGION

TABLE A-4.11

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL

REGION NO. 11 - BABINE

Company/Mill Type	Mill Location	Mill Production			Chip Production (000's m3)		
		1987	Projected	Projected 2-Shift	1987	Projected	Projected 2-Shift
Sawmills (millions fbm):							
Babine Forest Products	Burns Lake	213	213	213	290	290	290
Decker Lake Forest Products	Burns Lake	42	42	42	81	81	81
Houston Forest Products	Houston	210	210	210	312	312	312
Kyah Forest Products	Moricetown	12	12	12 (1)	12	12	12
Northwood Pulp & Timber	Houston	302	302	302	465	465	465
Skeena Cellulose (Groot)	Smithers	54	54	54	56	64	64
West Fraser Mills (PIR)	Smithers	143	143	143	239	239	239
Subtotal - Sawmills:		976	976	976	1435	1443	1443
Chipping Stations (000's m3):							
West Fraser Mills (PIR)	Smithers	-	-	-	102	102	102
TOTAL:					1537	1545	1545

(1) 1-Shift Operation

TABLE A-4.12

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 12 - NORTH COAST/SKEENA

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Kitwanga Lumber	Kitwanga	28	32	32 (1)	53	65	65
Skeena Cellulose	Terrace	136	140	140	271	280	280
Skeena Sawmills(Eurocan)	Terrace	198	198	150	407	407	305
Stege Logging	New Hazelton	44	49	49	72	80	80
Westar Timber	Carnaby	(30)	150	150	58	250	250
Westar Timber	Hazelton	(90)	closed	-	176	-	-
Westar Timber	Kitwanga	(45)	45	45	138	138	138
Wedeene River Contracting	Prince Rupert	-	80	80	-	113	113
Subtotal - Sawmills:		569	694	646	1175	1333	1231
Chipping Stations (000's m3):							
Wedeene River Contracting	Prince Rupert	-	-	-	-	25	25
Skeena Sawmills(Eurocan)	Terrace	(Included above with sawmill)			-	-	-
Westar Timber	Hazelton	-	-	-	-	325	325
Subtotal - Chipping Stations:					-	350	350
TOTAL:					1175	1683	1581

(1) 1-1/2 shifts/day

TABLE A-4.13

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL

REGION NO. 13 - CENTRAL COAST

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift

NO CHIPS CURRENTLY PRODUCED IN THIS REGION

TABLE A-4.14

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 14 - SOUTH COAST

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Sawmills (millions fbm):							
Allwood Products	Nanaimo	1	1	1 (1)	1	1	1
Bayside Sawmills	Port Mellon	12	18	18	18	27	27
Cdn.Pacific Forest Prod.(Saltair)	Ladysmith	100	100	100	200	200	200
Cdn.Pacific Forest Prod.(Mayo)	Nanaimo	95	95	95	160	160	160
Cdn.Pacific Forest Prod.(Cedar)	Tahsis	40	closed	-	56	-	-
Cdn.Pacific Forest Prod.(Hemlock)	Tahsis	162	205	205	330	390	390
CIPA Lumber	Nanaimo	65	65	65	117	117	117
Canfor (Eburne)	Vancouver	154	154	154	200	180	180
Canfor (Westcoast Cellufibre)	Vancouver	45	50	50 (2)	285	315	315
Fletcher Challenge (BCFP)	Boston Bar	111	111	85	266	266	200
Fletcher Challenge (BCFP)	Delta	87	87	78	139	139	125
Fletcher Challenge (BCFP)	Hammond	115	115	85	189	189	140
Fletcher Challenge (BCFP)	Vancouver	93	93	75	146	146	115
Fletcher Challenge (BCFP)	Victoria	101	101	85	140	140	120
Fletcher Challenge (BCFP)	Youbou	160	160	160	300	300	300
Fletcher Challenge (Crown)	Coquitlam	139	139	111	236	236	190
Fletcher Challenge (Crown)	Campbell River	67	67	67	295	295	295
Delta Cedar Products	Delta	29	29	29	34	34	34
Doman Industries	Chemainus	(46)	46	46	86	86	86
Doman Industries	Cowichan Bay	(135)	135	135	231	231	231
Doman Industries	Ladysmith	(130)	130	130	232	232	232
Doman Industries	Nanaimo	(140)	140	140	201	201	201
Doman Industries	New Westminster	(90)	90	90	(150)	150	150
Fraser Pulp Chips	Surrey	(10)	10	10	32	32	32
Goldwood Industries	Richmond	(25)	25	25	(40)	40	40
Interfor (McDonald Cedar)	Fort Langley	52	80	80	85	125	125
Interfor (Pacific Pine)	New Westminster	50	closed	-	63	-	-
Interfor (Western Whitewood)	New Westminster	-	160	160	-	240	240
Interfor (Bay)	Pitt Meadows	70	110	110	107	165	165
Interfor (Mackenzie Mills)	Surrey	78	78	78	108	108	108
Interfor (Silvertree)	Vancouver	73	73	73	103	103	103
Interfor (Pioneer)	Whonock	130	130	130	190	190	190
Lamford Forest Products	Sooke	72	72	72	88	88	88
Lindal Cedar Homes	Surrey	(12)	12	12 (1)	19	19	19
MacMillan Bloedel	Chemainus	102	106	106	120	125	125

TABLE A-4.14

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 14 - SOUTH COAST

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
MacMillan Bloedel(new mill 1989)	Nanaimo	-	110	110	-	135	135
MacMillan Bloedel(Harmac #3)	Nanaimo	189	closed	-	320	-	-
MacMillan Bloedel(Harmac #4)	Nanaimo	134	149	149	228	255	255
MacMillan Bloedel	Powell River	22	56	56	included w/pulpmill as rdwd.chips		
MacMillan Bloedel(Alberni Pacific)	Port Alberni	206	238	238	397	460	460
MacMillan Bloedel(Somass)	Port Alberni	108	175	175	283	350	350
MacMillan Bloedel	New Westminster	83	78	78 }			
MacMillan Bloedel(Can.White Pine)	Vancouver	128	118	118 }	336	310	310
Mill & Timber Products	Surrey	62	62	62	74	74	74
Nagaard Sawmill	Port Alberni	(4)	4	4	9	9	9
Pattar Forest Products	Delta	-	15	15 (1)	-	30	30
Pitt Timber	Port Coquitlam	12	12	12 (1)	28	28	28
Primex Forest Products	Courtenay	38	50	38	82	105	82
Primex Forest Products	Delta	59	80	59	104	140	104
Raven Lumber	Campbell River	(90)	80	80	268	230	230
Silvermere Forest Products	Ruskin	2	2	2 (1)	5	5	5
S & R Sawmills (4 mills)	Port Kells	198	198	150	258	258	195
Teal Cedar Products (Stag)	Surrey	34	34	26	111	111	85
Terminal Forest Products	Richmond	154	154	154	241	241	241
Terminal Forest Prod.(Mainland)	Vancouver	100	100	75	135	135	100
Tolko Industries(Nova Lumber)	North Vancouver	(70)	70	70	103	103	103
United Sawmills	Mission	4	4	4 (1)	7	7	7
Weldwood of Canada(Flavelle)	Port Moody	93	85	85	(105)	96	96
Weldwood of Canada(Empire)	Squamish	151	150	150	(230)	228	228
Subtotal - Sawmills:		4732	5011	4770	8291	8580	8171
Plywood/Veneer (millions 3/8"):							
Cantree Plywood	New Westminster	No chips produced.		-	-	-	-
Coastland Wood Industries	Nanaimo	-	100	100	-	50	50
Fletcher Challenge(BCFP)	Delta	90	90	90	65	65	65
Fletcher Challenge(Crown)	New Westminster	81	81	81	50	50	50
MacMillan Bloedel	Port Alberni	159	175	175	173	190	190
Richmond Plywood	Richmond	199	199	199	56	56	56
Surrey Veneer	Surrey	No chips produced.		-	-	-	-
Victoria Plywood Cooperative	Victoria	60	60	60	29	32	32

TABLE A-4.14

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 14 - SOUTH COAST

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Weldwood of Canada(Kent)	Vancouver	163	190	190	(20)	23	23
Weldwood of Canada(T-Ply)	Surrey	44	closed	-	(15)	-	-
Subtotal - Plywood:		796	895	895	408	466	466
Shake & Shingle (000's squares):							
Associated Cedar Products	Albion	38	45	45 (1)	8	10	10
Black Hawk Forest Products	Mission	(10)	closed	-	(2)	-	-
Canfor (Huntting Merritt)	Vancouver	112	closed	-	-	-	-
Clayton Cedar Products	Pitt Meadows	104	104	104 (1)	25	25	25
Empire Cedar Products	Ruskin	20	20	20 (1)	5	5	5
Fraser Cedar Products	ruskin	137	173	173	32	40	40
G & R Cedar	Matsqui	50	50	50	-	6	6
Green River Log Sales	Mission	200	200	200	54	54	54
Inland Shake & Shingle	Mission	154	154	154	34	34	34
Interfor	Whonock	148	closed	-	37	-	-
G.W. Lobb Group	Ruskin	81	81	81 (1)	15	20	20
Meeker Cedar Products	Mission	300	300	300	43	43	43
Mission Shakes	Mission	15	15	15 (1)	-	4	4
Parker Cedar Products	Surrey	87	100	100	21	23	23
Premium Cedar Products	Hatzic	60	60	60	10	10	10
Prospective Shake	Mission	40	40	40 (1)	5	8	8
R & K Cedar Products	Maple Ridge	38	70	70	8	15	15
S & W Shake & Shingle	Mission	58	58	58 (1)	23	23	23
Samra Bros. Cedar Products	Pitt Meadows	30	30	30 (1)	5	5	5
Starco Manufacturing	Albion	25	25	25	11	11	11
Teal Cedar Products	Surrey	110	130	130	22	26	26
Upstream Cedar Products	Maple Ridge	(30)	30	30 (1)	-	3	3
Vedder River Shake & Shingle	Maple Ridge	58	90	90	14	21	21
Waldun Forest Products	Ruskin	200	200	200	59	59	59
Subtotal - Shake & Shingle:		2105	1975	1975	433	445	445

TABLE A-4.14

RESIDUAL CHIP PRODUCTION BY COMPANY AND MILL — REGION NO. 14 - SOUTH COAST

Company/Mill Type	Mill Location	Mill Production 1987	Mill Production Projected	Mill Production Projected 2-Shift	Chip Production (000's m3) 1987	Chip Production (000's m3) Projected	Chip Production (000's m3) Projected 2-Shift
Remanufacturing Plants:							
C & C Lath	Duncan	-	-	-	14	14	14
Leslie Specialty Products	Richmond	-	-	-	5	5	5
MJS Lumber	Surrey	-	-	-	2	2	2
Paulcan Enterprises	Ladysmith	-	-	-	-	5	5
Port Mann Lumber	Coquitlam	-	-	-	5	5	5
Sawarne Lumber	Richmond	-	-	-	10	10	10
Subtotal - Remanufacturing:					36	41	41
Chipping Stations/Mobile Chippers (000's m3):							
Cimcor Fibre	Duncan	-	-	-	101	150	200
Coastland Wood Industries	Nanaimo	-	-	-	-	50	50
Fletcher Challenge(Crown)	Mobile Chipper	-	-	-	56	85	85
MacMillan Bloedel	Dryland Sorts	-	-	-	162	250	250
Canfor (Westcoast Cellufibre)	Vancouver	(included with Howe Sound Pulp as roundwood chips)					-
Van Isle Fibre	Chemainus	-	-	-	6	-	-
Morton Industries	Powell River	-	-	-	1	1	1
Haslam Lake Lumber	Powell River	-	-	-	7	7	7
Subtotal - Chipping Stations:					333	543	593
TOTAL:					9501	10075	9716

(1) 1-Shift Operation
(2) 3-Shift Operation

APPENDIX V

CURRENT AND PROJECTED PULPMILL PRODUCTION AND FIBRE CONSUMPTION BY COMPANY, MILL AND REGION

TABLE A-5

CURRENT AND PROJECTED PULPMILL PRODUCTION AND FIBRE CONSUMPTION

Region No.	Company	Location	Major Pulp Type	Annual Pulp Production (000's tonnes)		Annual Fibre Consumption (000's m3)							
						1987				PROJECTED			
				1987	Projected	Residual Chips	Roundwood Chips	Sawdust	Total Fibre	Residual Chips	Roundwood Chips	Sawdust	Total Fibre
1	Crestbrook Forest Ind.	Skookumchuck	Bleached Kraft	175	175	950	-	-	950	950	-	-	950
2	Celgar Pulp	Castlegar	Bleached Kraft	192	192	940	205	-	1145	1145	-	-	1145
3	Weyerhaeuser Canada	Kamloops	Bleached Kraft	427	427	1610	-	625	2235	1610	-	625	2235
6	Cariboo Pulp & Paper	Quesnel	Bleached Kraft	271	330	1430	-	-	1430	1715	-	-	1715
	Quesnel River Pulp	Quesnel	TMP/CTMP	191	305	450	-	-	450	710	-	-	710
		SUBTOTAL REGION 6:		462	635	1880	-	-	1880	2425	-	-	2425
7	Northwood Pulp & Timber	Prince George	Bleached Kraft	472	500	2570	-	-	2570	2720	-	-	2720
	PG Pulp & Paper(Intercon)	Prince George	Bleached Kraft	233	233	1250	-	-	1250	1250	-	-	1250
	Prince George Pulp & Paper	Prince George	Bleached Kraft	174	174	905	-	-	905	905	-	-	905
			Sack Kraft	104	104	515	-	-	515	515	-	-	515
			Subtotal:	278	278	1420	-	-	1420	1420	-	-	1420
		SUBTOTAL REGION 7:		983	1011	5240	-	-	5240	5390	-	-	5390

TABLE A-5

CURRENT AND PROJECTED PULPMILL PRODUCTION AND FIBRE CONSUMPTION

Region No.	Company	Location	Major Pulp Type	Annual Pulp Production (000's tonnes)		Annual Fibre Consumption (000's m3)							
						1987				PROJECTED			
				1987	Projected	Residual Chips	Roundwood Chips	Sawdust	Total Fibre	Residual Chips	Roundwood Chips	Sawdust	Total Fibre
8	Fibreco Pulp	Taylor	CTMP	-	180	-	-	-	-	430	-	-	430
9	Fletcher Challenge(BCFP)	Mackenzie	Bleached Kraft	209	209	1190	-	-	1190	1190	-	-	1190
	Finlay Forest Industries	Mackenzie	Refiner Mech.	131	155	300	-	-	300	355	-	-	355
		SUBTOTAL REGION 9:		340	364	1490	-	-	1490	1545	-	-	1545
12	Eurocan Pulp & Paper	Kitimat	Unbleached Kraft	331	330	1395	-	205	1600	1370	-	230	1600
			TMP	-	120	-	-	-	-	280	-	-	280
			Subtotal:	331	450	1395	-	205	1600	1650	-	230	1880
	Skeena Cellulose	Prince Rupert	Bleached Kraft	397	480	1375	735	-	2110	1835	735	-	2570
		SUBTOTAL REGION 12:		728	930	2770	735	205	3710	3485	735	230	4450
14	Fletcher Challenge (BCFP)	Crofton	Bleached Kraft	334	410	1875	-	80	1955	2380	-	-	2380
			Groundwood	179	180	-	420	-	420	-	420	-	420
			TMP/CTMP	124	225	215	115	-	330	395	205	-	600
			Subtotal:	637	815	2090	535	80	2705	2775	625	-	3400

TABLE A-5

CURRENT AND PROJECTED PULPMILL PRODUCTION AND FIBRE CONSUMPTION

Region No.	Company	Location	Major Pulp Type	Annual Pulp Production (000's tonnes)		Annual Fibre Consumption (000's m3)							
						1987				PROJECTED			
				1987	Projected	Residual Chips	Roundwood Chips	Sawdust	Total Fibre	Residual Chips	Roundwood Chips	Sawdust	Total Fibre
14	Fletcher Challenge (Crown Forest)	Campbell River	Bleached Kraft	174	175	145	-	845	990	145	-	845	990
			Semi/Unbl.Kraft	159	160	840	-	-	840	840	-	-	840
			TMP	408	510	785	235	-	1020	1035	235	-	1270
			Subtotal:	741	845	1770	235	845	2850	2020	235	845	3100
	Canadian Pacific Forest Products	Gold River	Bleached Kraft	245	245	535	745	-	1280	535	745	-	1280
			CTMP	-	225	-	-	-	-	-	600	-	600
			Subtotal:	245	470	535	745	-	1280	535	1345	-	1880
	Howe Sound Pulp & Paper	Port Mellon	Bleached Kraft	224	374	1095	175	-	1270	2060	-	-	2060
			TMP	-	174	-	-	-	-	205	255	-	460
			Subtotal:	224	548	1095	175	-	1270	2265	255	-	2520
	MacMillan Bloedel	Nanaimo	Bleached Kraft	361	360	1850	245	-	2095	1850	245	-	2095
	MacMillan Bloedel	Powell River	Semi-bl. Kraft	161	165	850	270	-	920	790	150	-	940
			Groundwood/CTMP	454	500	-	1130	-	1130	-	1250	-	1250
			Subtotal:	615	665	850	1400	-	2050	790	1400	-	2190

TABLE A-5

CURRENT AND PROJECTED PULPMILL PRODUCTION AND FIBRE CONSUMPTION

Region No.	Company	Location	Major Pulp Type	Annual Pulp Production (000's tonnes)		Annual Fibre Consumption (000's m3)							
						1987				PROJECTED			
				1987	Projected	Residual Chips	Roundwood Chips	Sawdust	Total Fibre	Residual Chips	Roundwood Chips	Sawdust	Total Fibre
14	MacMillan Bloedel	Port Alberni	Unbleached Kraft	178	175	885	25	-	910	890	-	-	890
			Groundwood	233	245	-	530	-	530	150	410	-	560
			CTMP	-	120	-	-	-	-	-	300	-	300
			Subtotal:	411	540	885	555	-	1440	1040	710	-	1750
	Western Pulp	Port Alice	Sulphite	156	156	-	980	-	980	-	980	-	980
	Western Pulp	Woodfibre	Bleached Kraft	214	250	985	285	-	1270	1210	285	-	1495
	SUBTOTAL REGION 14:			3604	4649	9860	5155	925	15940	12485	6080	845	19410
	PROVINCIAL TOTAL:			6911	8583	24740	6095	1755	32590	29465	6815	1700	37980